Anselm turmeda 8
Barcelona 08016
telf. : 93.359.57.35 - 93.276.01.56
http://www.fundacion-dr-jordi-mas.org
fundacion_mas_manjon@intercom.es

Nanotechnology in neuroscience: Section I, Instrumental in nanotechnology. Abstracts condensed from field notes of the research department

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(*) Cognitive Research Department

Abstract:

In the investigation of cognitive neuroscience nanotechnology is a credible promise of advancement.
We show progressively theoretical and practical possibilities. In this first section, we show the basic instrumental research to practice.
Scaning Tunncling Microscope (STM) and Atomic Force Microscope AFM

Nanotechnology in neuroscience:

Section I, Instrumental in nanotechnology.

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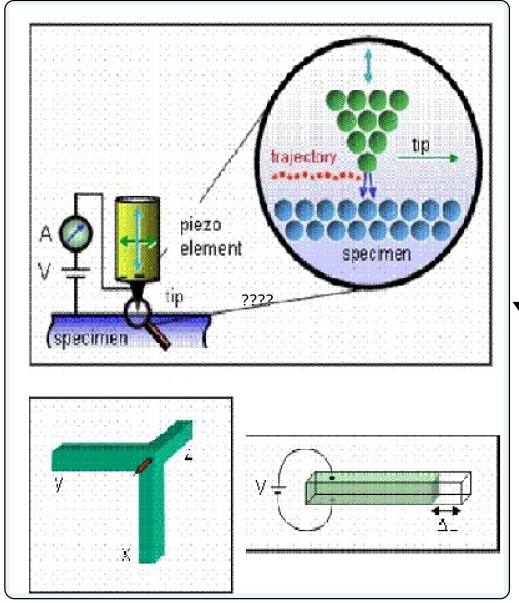
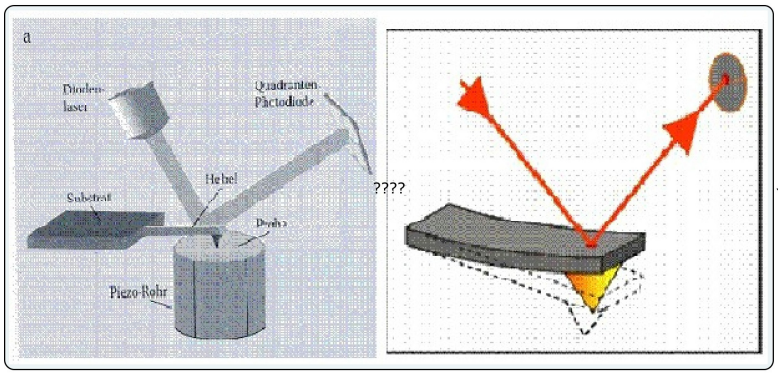


Scaning Tunncling Microscope (STM)

Instrumental in order to determine the position of individual atoms in the surface of a conductive material.
One end of extremely thin conductive tip is maintained
at a distance of 10 to 20 A ° in the top side of the surface,
thus using a piezoelectric transducer.
A voltage between the sample and the tip end one electric field is generated
causing the overlap between the electron clouds running in a direction of tunneling.



Atomic Force Microscope AFM

Hebel lever AFM is 50 to 100 microns (µm) long (a substrate etching).
Its thickness is 500 nm to 1 micron (µm).
The piezoceramic access positioning of a sample.
The kinetics of the lever is caused by Van der Waals interaction
between the surface atoms and an atom of the tip end of the lever,
measured by the reflection of light from a laser (diode) detected by a photodiode.